

## Writing and Solving Inequalities and Equations

Teacher:
Course: Algebra 1
<b>Lesson Objectives:</b> Student will: <ol style="list-style-type: none"><li>1. translate between word problems and inequalities</li><li>2. solve inequalities</li><li>3. represent inequalities on a number line</li><li>4. review the meaning of <b>solution</b>, <b>inequality</b>, and <b>equation</b></li></ol>
<b>TEKS:</b> A.7.B – "...investigate methods for solving linear equations and inequalities using concrete models, graphs,... select a method, and solve the equations and inequalities"  A.4.B – "use the... distributive property to simplify algebraic expressions"  A.1.C – "describe functional relationships for given problem situations and write equations or inequalities to answer questions arising from the situations"
<b>Materials:</b> <ul style="list-style-type: none"><li>• Review 2.1</li><li>• Graphing Calculators</li></ul>
<b>Engage:</b> N/A
<b>Elaborate:</b> N/A
<b>Explain:</b> Teacher and students will answer questions related to the review.
<b>Exploration:</b> N/A
<b>Evaluate:</b> Students will complete an 18-question review.

## Writing and Solving Inequalities and Equations

Teacher:
Course: Algebra 1
<b>Lesson Objectives:</b> Student will demonstrate his ability to: 1. translate between word problems and inequalities/equations 2. solve inequalities and equations 3. represent inequalities on a number line
<b>TEKS:</b> A.7.B – "...investigate methods for solving linear equations and inequalities using concrete models, graphs,... select a method, and solve the equations and inequalities"  A.4.B – "use the... distributive propert(y) to simplify algebraic expressions"  A.1.C – "describe functional relationships for given problem situations and write equations or inequalities to answer questions arising from the situations"
<b>Materials:</b> <ul style="list-style-type: none"><li>• Test 2.1</li><li>• Graphing Calculators</li><li>• Fun math puzzle (for students who finish test early)</li></ul>
<b>Engage:</b> N/A
<b>Elaborate:</b> N/A
<b>Explain:</b> N/A
<b>Exploration:</b> N/A
<b>Evaluate:</b> Students will complete a 17-question test.

## Plotting Points – the Human Graph and the Graphing Calculator

Teacher:
Course: Algebra 1
<b>Lesson Objectives:</b> Student will: <ol style="list-style-type: none"><li>1. plot points on a graph using the human body and a calculator</li><li>2. define and discuss the following vocabulary words:<ol style="list-style-type: none"><li>a. coordinate plane/coordinates</li><li>b. scatter plot</li><li>c. ordered pair/points,</li><li>d. x-axis,</li><li>e. y-axis</li></ol></li><li>3. practice TAKS-type question(s) involving graphing points (if time allows)</li></ol>
<b>TEKS:</b> A.1.B – "...gather and record data and use data sets to determine functional relationships between quantities"
<b>Materials:</b> <ul style="list-style-type: none"><li>• "Human Graph Understanding Coordinate Plane" Instructions</li><li>• "Human Graph or Coordinate Plane..." Powerpoint with cards to be cut out and distributed</li><li>• Graphing Calculators</li><li>• "Plotting Points Using the Graphing Calculator" handout</li><li>• TAKS question from April 2009 released test</li></ul>
<b>Engage:</b> Students will work in groups to locate the appropriate coordinates and find their place on a "human graph."  Teacher will cut out and distribute cards to each group with instructions for students to walk to the specified coordinate.
<b>Elaborate:</b> <ul style="list-style-type: none"><li>• Student will graph a temperature versus time graph for New York and Dallas.</li><li>• Teacher will give students a previous TAKS question that asks them to match the coordinates of a point to a graph and show them how the plot feature can be used to prevent switching the x and y values.</li></ul>
<b>Explain:</b> <ul style="list-style-type: none"><li>• Teacher will inform students that the calculator can be used to graphically show data and trends.</li><li>• Step-by-step instructions are included in the handout on how to enter and plot data points on the calculator</li></ul>
<b>Exploration:</b> Students will be asked to share what they know about statistics and to give examples involving crime rates, salaries, teen pregnancies, etc., to help them make a link between real-world data and the Stat function of the graphing calculator. Teacher will present the scenario of student's friend inquiring as to the temperature in Dallas versus New York in December in order to decide whether to move to Dallas. <u>Question to Student:</u> Can you think of a way to communicate this information that is easier than verbally telling your friend the low temperature each day?

**Evaluate:** Student will answer questions on “Plotting Points...” handout.

## Graphing Points in the Coordinate Plane

Teacher:
Course: Algebra 1
<b>Lesson Objectives:</b> Student will: <ol style="list-style-type: none"><li>1. practice plotting points in the coordinate plane</li><li>2. review the meaning of:<ol style="list-style-type: none"><li>a. coordinate plane/coordinates</li><li>b. scatter plot</li><li>c. ordered pair/points,</li><li>d. x-axis,</li><li>e. y-axis</li></ol></li></ol>
<b>TEKS:</b> A.1.B – "...gather and record data and use data sets to determine functional relationships between quantities"
<b>Materials:</b> <ul style="list-style-type: none"><li>• "Battleship" boards</li><li>• Instruction sheet</li></ul>
<b>Warmup:</b> Scatterplot bell ringer – student asked to specify the trend of several graphs, if there is a trend.
<b>Engage:</b> Students will play a modified version of the game "Battleship" in order to review graphing points.
<b>Elaborate:</b> N/A
<b>Explain:</b> N/A
<b>Exploration:</b> Battleship will require students to ascertain patterns in trying to determine the coordinates of their opponents' boards.
<b>Evaluate:</b> N/A

## Solving Literal Equations

Teacher:
Course: Algebra 1
<b>Lesson Objectives:</b> Student will: <ol style="list-style-type: none"><li>1. solve one and two step equations with more than one variable</li><li>2. define and give examples of literal equations</li></ol>
<b>TEKS: A.4.A</b> – “transform and solve equations... as necessary in problem situations” <b>TAKS Obj. 6:</b> “The student will demonstrate an understanding of geometric relationships and spatial reasoning.”
<b>Materials:</b> <ul style="list-style-type: none"><li>• Graphing Calculators</li><li>• ‘Area of composite figures’ worksheet</li><li>• Literal equations worksheet</li></ul>
<b>Engage:</b> Students will calculate their maximum heart rate using a literal equation.
<b>Elaborate:</b> Students will brainstorm on literal equations they have used before, (i.e. in geometry, science, etc.)
<b>Explain:</b> Teacher will introduce the vocabulary term: “literal equations”
<b>Exploration:</b> Students will determine the area of a composite figure (a rectangle with a triangle on top), first with numbers given, then with only letters given to represent the base and height of each figure. They will then determine the length or width of a figure, given the area.
<b>Evaluate:</b> Literal equations worksheet.